

1) a fluid located proximate the shaft and first thrust bearing to form, when the rotor hub rotates, a hydrodynamic bearing between the rotor hub and the first thrust bearing and an air bearing between the second thrust bearing and the rotor hub, the shaft being of smaller diameter than the first and second thrust bearings.

6. A motor as claimed in claim 5 wherein the thrust bearings are planar.

7. A motor as claimed in claim 5 wherein the thrust bearings are conical.

8. A motor as claimed in claim 6 further comprising a disc pack supported on an outer surface of the rotor.

9. A motor as claimed in claim 7 further comprising a disc pack supported on an outer surface of the rotor.

10. A motor as claimed in claim 5 wherein the air bearing is distal from the base.

11. A motor as claimed in claim 10 wherein the air thrust bearing comprises a gap of less than 0.001/min.

12. A fluid bearing system comprising a shaft, a sleeve rotating around the shaft, the system comprising first and second thrust bearings separated from each other along the shaft, each of the thrust bearing comprising a surface facing a surface of the sleeve, one of the thrust bearings comprising an air bearing, and the other of the bearings comprising a hydraulic bearing.

13. A fluid bearing system as claimed in claim 12 wherein the air bearing is distal from the base.

14. A motor as claimed in claim 12 wherein the thrust bearings are planar.

15. A motor as claimed in claim 5 wherein the thrust bearings are conical.

16. A motor as claimed in claim 10 wherein the air thrust bearing comprises a gap of less than 0.001/min.

17. In a spindle motor for a disc drive including a hub supporting one or more discs for rotation about a central axis and shaft of a motor, the shaft and a sleeve surrounding the shaft and supporting the hub on an outer surface thereof for rotation around the shaft defining a gap between the shaft and the surrounding sleeve, the sleeve being supported for rotation relative to the shaft by a fluid bearing system comprising first and second thrust bearings supported on the shaft and separated by the shaft, each of the thrust bearings comprising a thrust bearing element having a surface facing a cooperating surface of the sleeve, one of the thrust bearing having a fluid in a gap between the surface of the thrust bearing element and the cooperating surface of the sleeve, the other of the thrust bearings including air in a gap between the surface of the thrust bearing element and the sleeve.
18. A motor as claimed in claim 17 wherein the first and second thrust bearing surfaces are planar.
19. A motor as claimed in claim 17 wherein the thrust bearing surfaces are conical.
20. A motor as claimed in claim 17 wherein the thrust bearing comprising air in the gap is less than 0.001mm.
21. A motor as claimed in claim 20 wherein the motor is arranged so that the air thrust bearing surface rests on the corresponding external surface of the sleeve when the system is at rest.
22. A motor as claimed in claim 21 wherein the air thrust bearing comprises a gap of less than 0.001 mm.

REMARKS

This Amendment is submitted in response to the office action dated October 4, 2002. Reconsideration and allowance of the claims is requested.

In this previous office action, a restriction requirement, claim 5 was elected. In this office action, although in the cover sheet the Examiner stated he was considering claim 5, in the written detailed action he only considered claim 1. Therefore, to move this case forward as speedily as possible, we will presume that the Examiner was in fact considering claim 5 and not claim 1. If this is incorrect, since claim 1 had not been elected, a new first office action should be rendered on claim 5.

Considering first paragraph 1, the Examiner says that he is not taking into account the changes to 35 U.S.C. 102(e) by the AIPA Act of 1999 because the case was not filed after November 29, 2000. However, consideration of the heading indicates that the case was filed on June 15, 2001.

Further, in the rejection of claim 5, at paragraph 2, the Examiner cites a reference to Khan et al., U.S. 6,394,654. This rejection is respectfully traversed. The Khan reference does not show first and second thrust bearings separated by a shaft, the shaft being a smaller diameter than the surface of the thrust bearing. Therefore, the reference shows nothing remotely applicable to the claimed invention. Further, since the Khan patent and the present invention are commonly assigned, Khan is not usable under 35 U.S.C. §103.

Therefore, reconsideration and allowance of the claims is requested.

The Commissioner is authorized to charge any additional fees to Deposit Account No. 20-0782 (Order No. STL 2989).

Respectfully submitted,

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